

Upper Touchet Project Invasive Plant Report

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Scale of Analysis

Geographical Context for Effects Analysis

This invasive plant analysis area incorporates the entire extent of the 4,450 acre Upper Touchet project located on the Walla Walla Ranger District, Umatilla National Forest. The project planning area is 20 miles south of Dayton, Washington and is located within the Upper North Fork Touchet sub-watershed in T7N, R39 East Sec 12 & 13 and R40E Sec 2,3,7,8,17,18,19,20.

Temporal Context for Effects Analysis

The temporal context for evaluating environmental effects considers past, present, and reasonably foreseeable actions in the Upper Touchet analysis area. The temporal scale is bounded in the past by the earliest known period in which activities would have affected invasive plant establishment and distribution in ways that persist today (existing condition), and which have the potential to overlap in space and time with the direct and indirect effects of the activities included in alternatives A, B, and D. In this case fifty years into the past appropriately captures most of the recreation, timber harvest, and livestock grazing activities that contributed to the invasive plant existing condition. The temporal scale is bounded in the future by the occurrence of the most distant reasonably foreseeable future activities with direct and indirect effects that overlap in time and space with the direct and indirect effects of the activities proposed under the action alternatives. Ten years into the future represents the approximate extent of reasonably foreseeable activities such as invasive plant treatment, vegetation management and recreation related effects that may overlap spatially with the direct and indirect effects of the Upper Touchet project.

Resource Indicators and Measures

Table 1 Resource Indicators and Measures for Assessing Effects

Resource Element	Resource Indicator	Measure	Addresses Purpose & Need of Key Topic?	Source
Invasive Plant Invasion Risk	Soil disturbance and irradiance (canopy opening)	Acres of ground based "mechanical/commercial" activity		(Reader & Bricker, 1994)
Invasive Plant Invasion Risk	Roadside soil disturbance-invasive plant occurrence	Miles by road class in project area		(Birdsall, McCaughey, & Runyon, 2012)

Methodology

Methodology for assessing effects to invasive plants includes estimation of acres categorized as being at low, moderate, or high risk of invasive plant infestation as a result of project activities. Generally, infestation risk is considered proportional to ground disturbance extent and intensity. A combination of mineral soil exposure and the amount of light reaching the forest floor (irradiance) is expected to increase invasive plant establishment (Reader and Bricker 1994, USDA Forest Service 2005) . Existing open road density and new road construction within the project area are assessed in this analysis because they have the potential to increase the risk of invasive plant introduction and spread (Birdsall, McCaughey and Runyon 2012). In addition, risk categories are determined by assessing spatial overlap of project activities with existing conditions including review of current infestation inventories located within the Natural Resource Inventory System (NRIS) database. Because there is such uncertainty in predicting both location and timing of invasive species spread, the purpose is not to predict the actual number of acres that may become infested, but to show the comparative risk of the different activities and alternatives. The underlying premise is that areas closest to existing infestations and undergoing the most soil disturbance will be at the highest risk of supporting future weed spread. Effects are also assessed within the context of numerous mitigating Project Design Criteria (PDC's) that reduce the introduction, transport, and establishment of any invasive plants into or within the project area. Complete list of invasive plant Project Design Criteria can be found below in this document as well as Appendix D of the Upper Touchet Vegetation Management Final Environmental Assessment.

Affected Environment

The affected environment includes the acres within the project area boundary currently infested by invasive plants as well as those acres that are currently not infested but considered at risk for infestation as a result of implementing the Upper Touchet Project.

Existing Conditions

Existing invasive plant conditions within the project area are a result of historic and ongoing actions including road construction, timber harvest, livestock grazing and recreation. These actions altered soils and native vegetation and contributed to the introduction and spread of invasive plants. Currently, within the project area, there are 21 inventoried invasive plant sites totaling approximately 712 gross or 80 net infested acres (1.6% of the total project area). Infestations are distributed throughout the project area primarily in association with road prisms and past timber harvest units. Specific areas of concern within the project area include high priority infestations of spotted knapweed adjacent to Forest roads 64 and 6437 as well as Canada thistle within the Ski Bluewood permit area. Recent chemical, manual, and biological treatment of these known infestations have resulted in reductions to both their total extent and density. It is also recognized that there are likely numerous small isolated infestations that have not been detected or inventoried.

Comparison of Alternatives

IMPACT LEVEL DEFINITIONS SPECIFIC TO INVASIVE PLANT SPECIES

TYPES	Direct: Transport and deposition of invasive plant seed into and within the project area by vehicles and other machinery during project implementation.
	Indirect: Increased infestation as result of soil disturbance caused by project. Increased or decreased invasive plant infestation as a result of motor vehicle use designation and associated increased or decreased traffic/recreation within the project area.
	Beneficial: Reduction in extent and/or density of invasive plants at the project or local scale.
	Adverse: Increase in extent and/or density of invasive plants at the project or local scale.
CONTEXT	Site Specific: Within the project area.
	Local: The connected transportation system and associated disturbed sites with potential for future associated infestation within approximately 5 miles of the project area. This includes Highway 204, FS roads 31 and 3738.
DURATION	Short Term: 0-5 years
	Long Term: Greater than 5 years
INTENSITY/MAGNITUDE	Negligible: Invasive plant extent and density changes that are not measurable with standard monitoring or cannot be attributed to project activities or distinguished from other unrelated contributing factors.
	Minor: Occasional new occurrences of individual invasive plants within the project area resulting from disturbed soil and vehicle-based seed transport.
	Moderate: Annually recurring occurrences of new isolated patches of invasive plants within the project area resulting from disturbed soil and vehicle-based seed transport.

Direct/Indirect Effects

Estimating effects for each alternative is largely a function of calculating acres or miles of proposed activities as well as analyzing the spatial overlap of those activities with existing invasive plant infestations. Project design criteria are included in all alternatives (see list below) to address the risk of contaminated equipment introducing weed seeds into the project area (direct effect), however these measures are not expected to entirely eliminate the likelihood of incidental infestation.

Common to Alternatives A, B, D

Landscape prescribed fire is proposed on 1530 acres under all alternatives. Approximately 20 gross acres of inventoried invasive plants occur within the proposed burn boundary. These infestations are primarily located along road shoulders, pull outs, and gravel pits in or adjacent to the burn perimeter. Primary risks associated with burning include the potential for a reduction in native plant vigor (direct effect) and the associated displacement by non-native invasive plants (indirect effect). Currently the native plant community is considered largely intact and healthy within the project area. The low to moderate intensity burning conditions prescribed in this project are unlikely to result in large scale, long term reductions to native forb populations. Native grass species are expected to respond favorably to the mild fire disturbance and limit the establishment and spread of invasive plant species. There is, however, some potential for isolated, undocumented pockets of invasive annual grass such as medusahead rye to be stimulated by the burn and begin to displace native grass. Project design criteria are incorporated into this project assessment as well as supplemental site-specific burn plans in order to

reduce the potential for weed transport and establishment associated with vehicle and foot traffic during burn activities (see list below).

All alternatives would result in the creation of “landings” where logs are processed and loaded and where residual limb/top piles would be left for future removal or burning. The specific location and size of these landings and piles may vary somewhat between alternatives however it is anticipated that all alternatives will have similar total footprints for landings and therefore the resulting effect to invasive plants will be similar. These areas receive the greatest degree of project related disturbance and have a potential to become infested with invasive plants however they are considered spatially small relative to the total project area. Project design elements include re-seeding these areas with native plant species. These areas are typically well documented and communicated to the District invasive plant specialist for inclusion in post project invasive plant monitoring activities.

Alternative A

In this case Alternative A proposes 1,150 acres of commercial treatment, likely accomplished with large equipment that will cause soil disturbance and canopy reduction (direct effects) and result in an increased future risk for invasive plant establishment on those acres (indirect effect). Specifically, 150 acres of proposed commercial treatments overlap an existing Canada thistle infestation and result in a high risk classification while the remaining 1000 acres are classified as moderate risk for invasion. An additional 440 acres of non-commercial thinning is proposed under Alternative A. Non-commercial hand thinning is not expected to result in soil disturbance however infestation risk is considered slightly elevated on these acres as a result of seed transport on workers, equipment and vehicles both within and between activity units (direct effect). There are no new “open” designated road miles proposed in Alternative A however there is 1 mile of newly constructed temporary road proposed as well as approximately 43 miles of total haul route road miles included in this alternative. Construction, maintenance, and increased travel are expected to moderately increase the infestation risk along most of the 43 miles of total road in addition to increasing infestation risk to any immediately adjacent harvest units. As described below, the project level invasive plant effects of Alternative A are considered slightly greater than those of Alternative B but slightly less than Alternative D.

Alternative B

Alternative B proposes the same number of commercial, non-commercial, and prescribed fire treatment acres as Alternative A. The primary difference is in the method of harvest. In this case Alt B proposes 240 fewer acres of skyline logging, 220 more acres of helicopter logging, and 20 more acres of ground based equipment logging. Additionally, 1 less mile of temporary road construction is proposed in this alternative. The Logging system variations in this alternative are not expected to measurably alter the risk of invasive infestation and are therefore considered equal to alternative A. The elimination of 1 mile of temporary road construction does result in a slight overall reduction to the risk of invasive plant establishment when compared to Alternative B. Alternative B is expected to transition the fewest acres from their existing condition to an elevated moderate or high risk rating.

Alternative D

Comparatively, Alternative D proposes 1205 acres of commercial harvest and 365 acres of non-commercial thinning. This constitutes an approximate 5 percent increase in soil disturbing harvest activities when compared to the other alternatives. More total miles of new or existing temp road construction (2.6miles) and total haul routes (48 miles) are proposed in Alternative D. This corresponds to an approximate 17 percent increase in potential road related infestation effects when compared to Alternative B. When weighting the combined direct/indirect effects of proposed project activity acres and road miles, Alternative D is expected to have approximately 6 percent greater impact to overall invasive plant infestation risk compared to Alternative B.

Table 2. Comparison of invasive plant risk by alternative

Action-Risk	Alt A	Alt B	Alt D
Commercial Thin	1000 ac Mod 150 ac High	1000 ac Mod 150 ac High	1055 ac Mod 150 ac High
Non-commercial Thin	440 ac Low	440 ac Low	365 ac Low
Landscape Burning	1530 ac Low	1530 ac Low	1530 ac Low
Temp Road	1.3 mi Mod	0 mi Mod	2.6 mi Mod
Haul Roads	42.8 mi Low	41.8 mi Low	48 mi Low
Totals	Low 1970 ac, 42.8 mi Mod 1000 ac, 1.3 mi High 150 ac	Low 1970 ac, 41.8 mi Mod 1000 ac, 0 mi High 150 ac	Low 1895 ac, 48 mi Mod 1055 ac, 2.6 mi High 150 ac

Cumulative Effects

This cumulative effects analysis considers the past, present and reasonably foreseeable future actions within and adjacent to the National Forest Lands on the Walla Walla Ranger District within the Upper Touchet planning area. Actions are considered 'reasonably foreseeable' if there has been any public notice or planning regarding an activity, or if future activity can be projected based on ongoing or historical activity in the area with enough detail to analyze effects.

In the case of the Upper Touchet project, the existing condition, as defined by existing invasive plant infestations, is a result of past road construction and maintenance, recreation, grazing, timber harvest, and other soil disturbances. The direct and indirect effects of the three project alternatives are expected to have relatively minor spatial overlap with existing invasive plant sites and therefore related effects are also expected to have a minor cumulative increase relative to past actions and the existing condition. The most likely foreseeable future actions within the project area are those associated with vehicle based recreational activities and the ongoing implementation of invasive plant management activities as outlined in the 2010 Umatilla National Forest Invasive Plant Treatment FIES. Minor cumulative increases in invasive plant infestations are expected where future vehicle use, camping, and other recreation related activities overlap the actions of either Upper Touchet project alternative

however the cumulative effects are expected to be slightly greater for Alternative D than for Alternatives A or B, proportional to the estimated difference in direct effects. These cumulative effects are expected to be moderated by the Early Detection Rapid Response (EDRR) principles of survey, treatment, and monitoring that occur in accordance with the 2010 Umatilla National Forest Invasive Plant Treatment FIES.

Regulatory Framework

- Forest Service Manual 2900
- Executive Order 13112
- Pacific Northwest Region FEIS Invasive Plant Program 2005
- Umatilla National Forest FIES Invasive Plant Treatment 2010
- Umatilla Land and Resource Management Plan 1990

Project Design Criteria from USDA Forest Service. 2001. Guide to Noxious Weed Prevention Practices.

1. All gravel, fill, sand stockpiles, quarry sites, and borrow material will be inspected for the presence of invasive plants before use and transport. Use only gravel, fill, sand, and rock that are judged to be weed seed free by District invasive plant specialist.
2. Road blading, brushing and ditch cleaning in areas with high concentrations of invasive plants will be conducted in consultation with District invasive plant specialists. Invasive plant treatment and prevention practices will be incorporated as appropriate.
3. Project or contract maps will show currently inventoried high priority noxious weed infestations as a means of aiding in avoidance and/or monitoring.
4. Prior to moving onto the forest, ensure that all off-road equipment is free of soil, seeds, vegetative matter, or other debris that could contain seeds. In addition, prior to moving off-road equipment from a site known to be infested with invasive species to any other site that is believed to be free of noxious weeds, reasonable measures will be taken to make sure equipment is free of soil, seeds, vegetative matter, or other debris that could contain seeds (timber sale contract provision B/BT 6.35 or equivalent provision).
5. Noxious weed-free straw and mulch will be used for all projects conducted or authorized by the Forest Service on National Forest System Lands. If State certified straw and/or mulch is not available, individual forests should require sources certified to be weed free using the North American Weed Free Forage Program standards, or a similar certification process.
6. All soils disturbed by project activities will be revegetated with certified "weed free" native seed.
7. Do not locate parking areas within invasive plant sites.

References

Birdsall, J. L., McCaughey, W. and Runyon, J. B. (2012), Roads Impact the Distribution of Noxious Weeds More Than Restoration Treatments in a Lodgepole Pine Forest in Montana, U.S.A. *Restoration Ecology*, 20: 517–523

Kimberling, D.N., Shanafelt, B.J., Parks, C.G., Knecht, D.E., and DePuit, E.J. 2003. Forest Service land management actions as contributors to non-native plant invasions in Pacific Northwest forests and rangelands: a review: 38p.

Reader, R.J., and Bricker, B.D. 1994. Barriers to the establishment of invading non-forest plants in deciduous forest nature reserves. *Environmental Conservation* 21(1): p.62-6.

USDA Forest Service. 2001. Guide to Noxious Weed Prevention Practices. USDA, Forest Service, Washington, D.C.

USDA Forest Service. 2005. Pacific Northwest Region Invasive Plant Program. Preventing and Managing Invasive Plants. Final Environmental Impact Statement. Publication R6-NR-FHP-PR-02-05, USDA Forest Service, Pacific Northwest Region, Portland, Oregon.

USDA Forest Service. 2010. Final Environmental Impact Statement, Umatilla National Forest Invasive Plants Treatment. Umatilla National Forest, U.S. Department of Agriculture Forest Service, Pendleton, Oregon.